

What is claimed is:

1. A digital receive-focusing apparatus for use in an ultrasound imaging system comprising:

a plurality of channel modules responsive to ultrasound channel signals for producing a receive-focused beam, each of said plurality of channel modules comprising:

i) means for multiplexing ultrasound signals originating from at least two ultrasound channels; and

ii) means for digitally processing and compensating said multiplexed signal.

2. The digital receive-focusing apparatus of claim 1, wherein said means for multiplexing includes an analogue multiplexer.

3. The digital receive-focusing apparatus of claim 1, wherein said means for digitally processing includes an analogue-to-digital converter for converting said multiplexed signal into a digital signal and a compensator for compensating said digital signal by filtering and time-delaying said digital signal.

4. The digital receive-focusing apparatus of claim 1, wherein said plurality of channel modules are embodied as an Application Specific Integrated Circuit.

5. The digital receive-focusing apparatus of claim 1, wherein said plurality of channel modules are arranged in parallel so that said digital receive-focusing apparatus can operate in a multi-channel multi-beam mode.